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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/591,181	08/30/2006	Hirofumi Nozawa	293599US3PCT	7758

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OBLON, SPIVAK, MCCLELLAND MAIER & NEUSTADT, P.C.
1940 DUKE STREET
ALEXANDRIA, VA 22314

EXAMINER

IRVIN, THOMAS W

ART UNIT	PAPER NUMBER
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3683

NOTIFICATION DATE	DELIVERY MODE
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12/07/2007

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary

Application No.

10/591,181

Applicant(s)

NOZAWA ET AL.

Examiner

Thomas W. Irvin

Art Unit

3683

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 14-26 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 14-26 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 August 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>20060830, 20070803</u> | 6) <input type="checkbox"/> Other: ____ |

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 14, 16, and 24 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In Re claim 14, lines 10-11, it is not clear as to the placement of the oil passage, in that in the figures it appears to be located between the bearings and yet claimed to be "on an outside of an area between the two positions... which the bearings are provided". Additionally, claim 14 recites the limitation "the two positions" in lines 10 and 11. There is insufficient antecedent basis for this limitation in the claim.

In Re claim 16, the oil passage is claimed as being "located on an outer side of a spline portion formed in the pulley shaft", yet is depicted in the drawing as running from the center of the pulley shaft outward in a radially direction.

In Re claim 24, the movable sheave is claimed to be radially supported on the cylinder member such that a load applied to the movable sheave is "partially transmitted to the shaft bearings... without being applied to the pulley shaft." It is not clear how the load can be only partially transmitted to the bearings, and not at least be partially transmitted to the pulley shaft as well. Additionally, in line 3, "a" should be removed.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 14, 15, 18-20 and 24-26 are rejected under 35 U.S.C. 102(b) as being anticipated by Lamers (5,527,226).

In Re claim 14, '226 discloses a belt type continuously variable transmission comprising: a pulley shaft (41) that is supported by bearings (54); a supply oil passage that supplies hydraulic fluid to a pulley hydraulic chamber (49,50) and includes a radial direction oil passage (51,56) that is formed in the pulley shaft in a radial direction of the pulley shaft; a movable sheave (43) that is attached to the pulley shaft; and a cylinder member (45,47) that is attached to the pulley shaft and faces the movable sheave, and an outer peripheral surface of an inner cylindrical portion of the movable sheave contacts and partially slides on an inner peripheral surface of a first cylindrical portion of the cylinder member.

In Re claim 15, one of the bearings (54) is provided near the radial direction oil passage and on an outer surface side of a cylinder member whose inner surface side forms the pulley hydraulic chamber for the movable sheave that is attached to the pulley shaft so as to be fixed with respect to the pulley shaft in a rotational direction of the pulley shaft and so as to be slidable in the axial direction of the pulley shaft.

In Re claim 18, the pulley hydraulic chamber includes a first hydraulic chamber (49), and the first hydraulic chamber is a space formed by a back surface of the movable sheave (43) and the cylinder member which faces the movable sheave in the axial direction (45) of the pulley shaft.

In Re claim 19, the pulley hydraulic chamber includes a second hydraulic chamber (50), and the second hydraulic chamber is a space formed by an end surface of an inner cylindrical portion of the movable sheave and the cylinder member.

In Re claim 20, the cylinder member includes a first radial direction portion which extends in the radial direction of the pulley shaft; a first cylindrical portion which extends from the first radial direction portion so as to be parallel with an axis line of the pulley shaft; a second radial direction portion which extends from the first cylindrical portion in the radial direction of the pulley shaft along the back surface of the movable sheave; and a second cylindrical portion which extends from the second radial direction portion so as to be parallel with the axis line of the pulley shaft.

In Re claim 24, the movable sheave is attached to the pulley shaft and is radially supported on the cylinder member in such a way that the axial load applied by a belt on the movable sheave is partially transmitted to the shaft bearings directly.

In Re claim 25, the outer peripheral surface of the inner cylindrical portion of the movable sheave that is attached to the pulley shaft is partially slidably supported on the inner peripheral surface of the first cylindrical portion of the cylinder member.

In Re claim 26, the movable sheave is attached to the pulley shaft and is radially supported on the cylinder member in such a way that a load applied by a belt on the movable sheave can be transmitted to the cylinder member via the oil.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 16 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lamers (5,527,226) as applied to claim 14 above, and further in view of Gieles (7,241,238).

'226 discloses the claimed invention except failing to disclose a spline. '238 discloses in claim 19 that an axially movable pulley sheave is connected to a shaft by means of a spline. Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the CVT, taught by '226, to include a spline for attaching the movable sheave to the pulley shaft, as taught by '226, for the purpose of attaching the pulley sheave so as to be able to move in an axial direction, but still spin with the pulley shaft to transfer motion from the belt to the output shaft.

Claims 21-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lamers (5,527,226) as applied to claim 15 above, and further in view of Swanson et al. (5,269,726).

In Re claim 21, '226 discloses that the pulley hydraulic chamber includes a first hydraulic chamber (49), and the first hydraulic chamber is a space formed by the inner cylindrical portion of the movable sheave (43), and the cylinder member which faces the movable sheave in the axial direction (45) of the pulley shaft. '226 fails to disclose a ring-shaped member fixed to a back surface of the movable sheave.

'726 teaches, with reference to Fig. 10a and 10b, attaching a plate spring to the back of a movable sheave. Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the CVT, taught by '226, to include a plate spring in the first hydraulic chamber, as taught by '726, for the purpose of automatically resetting the axial position of the moveable sheave, and width of the belt groove during launch conditions or hydraulic failure.

In Re claim 22, '226 further discloses that the pulley hydraulic chamber includes a second hydraulic chamber (50), and the second hydraulic chamber is a space formed by an end surface of the inner cylindrical portion of the movable sheave and the cylinder member.

In Re claim 23, the cylinder member includes a first radial direction portion which extends in the radial direction of the pulley shaft; a first cylindrical portion which extends from the first radial direction portion so as to be parallel with an axis line of the pulley shaft; a second radial direction portion which extends from the first cylindrical portion in

the radial direction of the pulley shaft along the back surface of the movable sheave;
and a second cylindrical portion which extends from the second radial direction portion
so as to be parallel with the axis line of the pulley shaft.

Claims 14, 15, 18-20, 24-26 are rejected under 35 U.S.C. 103(a) as being
unpatentable over Friedmann (5,295,915) in view of Ehrlich et al. (6,336,878).

In Re claim 14, '915 discloses a belt type continuously variable transmission
comprising: a pulley shaft (1); a supply oil passage (316,322) that supplies hydraulic fluid
to a pulley hydraulic chamber (309,311) and includes a radial direction oil passage that
is formed in the pulley shaft in a radial direction of the pulley shaft; a movable sheave
(301) that is attached to the pulley shaft; and a cylinder member (312) that is attached
to the pulley shaft and faces the movable sheave, and an outer peripheral surface of an
inner cylindrical portion of the movable sheave contacts and slides on an inner
peripheral surface of a first cylindrical portion of the cylinder member. '915 fail to
disclose that the pulley shaft is supported by bearings.

'878 teaches to support a shaft of a CVT with bearings (28). Thus, it would have
been obvious to one of ordinary skill in the art at the time the invention was made to
have modified the CVT, taught by '915, to include support bearings, as taught by '878,
for the purpose of rotatably supporting the shaft, and decreasing friction losses.

In Re claim 15, the modified CVT of '915, a bearing (327) is provided near the
radial direction oil passage and on an outer surface side of a cylinder member whose
inner surface side forms the pulley hydraulic chamber for the movable sheave that is

attached to the pulley shaft so as to be fixed with respect to the pulley shaft in a rotational direction of the pulley shaft and so as to be slidable in the axial direction of the pulley shaft.

In Re claim 18, '915' further discloses that the pulley hydraulic chamber includes a first hydraulic chamber (309), and the first hydraulic chamber is a space formed by a back surface of the movable sheave and the cylinder member which faces the movable sheave in the axial direction of the pulley shaft.

In Re claim 19, '915 further discloses that the pulley hydraulic chamber includes a second hydraulic chamber (311), and the second hydraulic chamber is a space formed by an end surface of an inner cylindrical portion of the movable sheave and the cylinder member.

In Re claim 20, '915 further discloses that the cylinder member includes a first radial direction portion; a first cylindrical portion; a second radial direction portion; and a second cylindrical portion.

In Re claim 24, in the modified CVT of '915, the movable sheave is attached to the pulley shaft and is partially radially supported on the cylinder member, and a load applied by a belt (303) on the movable sheave would be partially transmitted to the shaft bearings through the cylinder member.

In Re claim 25, the outer peripheral surface of the inner cylindrical portion of the movable sheave that is attached to the pulley shaft is slidably supported on the inner peripheral surface of the first cylindrical portion of the cylinder member.

In Re claim 26, the movable sheave is attached to the pulley shaft and is radially supported on the cylinder member in such a way that a load applied by a belt on the movable sheave can be transmitted to the cylinder member via the oil.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thomas W. Irvin whose telephone number is (571) 270-3095. The examiner can normally be reached on Mon-Fri 8am-4pm, Alt Fri off (EST).

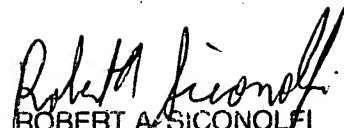
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Siconolfi can be reached on (571) 272-7124. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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 11/30/07
ROBERT A. SICONOLFI
SUPERVISORY PATENT EXAMINER